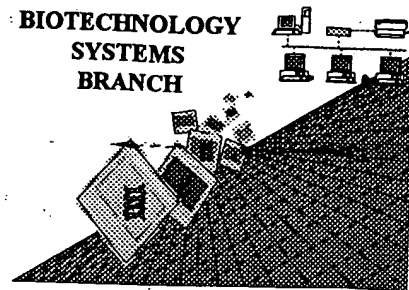


RAW SEQUENCE LISTING **ERROR REPORT**

BIOTECHNOLOGY
SYSTEMS
BRANCH



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer form:

RECEIVED

Application Serial Number: 09/196,161C

OCT 03

Source: 1645

TECH CENTER 1600/2901

Date Processed by STIC: 9/26/2000

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) **INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,**
- 2) **TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY**

FOR FURTHER INFORMATION, PLEASE TELEPHONE MARK SPENCER, 703-308-4212.

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25. Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:
<http://www.uspto.gov/web/offices/pac/checker>

1645

RAW SEQUENCE LISTING

DATE: 09/26/2000

PATENT APPLICATION: US/09/196,161C

TIME: 14:50:13

Input Set : A:\1459-011.app

Output Set: N:\CRF3\09262000\I196161C.raw

**Does Not Comply
Corrected Diskette Needed**

3 <110> APPLICANT: SIN, Yoke Min
 4 LAM, Toong Jin
 5 GONG, Zhlyuan
 7 <120> TITLE OF INVENTION: A RECOMBINANT VACCINE AGAINST FISH INFECTIOUS DISEASES
 9 <130> FILE REFERENCE: Applied Research
 11 <140> CURRENT APPLICATION NUMBER: 09/196,161C
 12 <141> CURRENT FILING DATE: 1998-11-20
 14 <150> PRIOR APPLICATION NUMBER: 9803188-3
 15 <151> PRIOR FILING DATE: 1998-09-28
 17 <160> NUMBER OF SEQ ID NOS: 19
 19 <170> SOFTWARE: PatentIn Ver. 2.1
 21 <210> SEQ ID NO: 1
 22 <211> LENGTH: 105
 23 <212> TYPE: PRT
 24 <213> ORGANISM: Artificial Sequence
 26 <220> FEATURE:
 27 <221> NAME/KEY: MUTAGEN
 28 <222> LOCATION: (2)
 29 <223> OTHER INFORMATION: A/S WHERE S HAS BEEN DERIVED FROM THE SYNTHETIC
 30 GENE.
 32 <220> FEATURE:
 33 <221> NAME/KEY: MUTAGEN
 34 <222> LOCATION: (4)..(105)
 35 <223> OTHER INFORMATION: Q - THE GLUTAMINE CODONS TAA AND TAG IN THE
 36 ORIGINAL SEQUENCE, HAVE BEEN REPLACED WITH THE
 37 UNIVERSAL GLUTAMINE CODONS CAG OR CAA IN THE
 38 SYNTHETIC GENE
 40 <220> FEATURE:
 41 <221> NAME/KEY: MUTAGEN
 42 <222> LOCATION: (34)
 43 <223> OTHER INFORMATION: V/G WHERE G HAS BEEN DERIVED FROM THE SYNTHETIC
 44 GENE.
 46 <220> FEATURE:
 47 <221> NAME/KEY: MUTAGEN
 48 <222> LOCATION: (105)
 49 <223> OTHER INFORMATION: V/I WHERE I HAS BEEN DERIVED FROM THE SYNTHETIC
 50 GENE.
 52 <400> SEQUENCE: 1
 53 Gly Ala Ala Gln Gly Glu Ala Asn Gly Asn Gln Pro Phe Ala Ala Asn
 54 1 5 10 15
 56 Asn Ala Ala Arg Gly Ile Cys Val Pro Cys Gln Ile Asn Arg Val Gly
 57 20 25 30
 59 Ser Val Thr Asn Ala Gly Asp Leu Ala Thr Leu Ala Thr Gln Cys Ser
 60 35 40 45
 62 Thr Gln Cys Pro Thr Gly Thr Ala Leu Asp Asp Gly Val Thr Asp Val
 63 50 55 60
 65 Phe Asp Arg Ser Ala Ala Gln Cys Val Lys Cys Lys Pro Asn Phe Tyr

see item 12 on Error Summary Sheet

RAW SEQUENCE LISTING

DATE: 09/26/2000

PATENT APPLICATION: US/09/196,161C

TIME: 14:50:13

Input Set : A:\1459-011.app

Output Set: N:\CRF3\09262000\I196161C.raw

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66 65          70          75          80
68 Tyr Asn Gly Gly Ser Pro Gln Gly Glu Ala Pro Gly Val Gln Val Phe
69          85          90          95
71 Ala Ala Gly Ala Ala Ala Gly Val
72          100          105
75 <210> SEQ ID NO: 2
76 <211> LENGTH: 316
77 <212> TYPE: DNA
78 <213> ORGANISM: Ichthyophthirius multifiliis
80 <220> FEATURE:
81 <221> NAME/KEY: CDS
82 <222> LOCATION: (1)..(315)
84 <400> SEQUENCE: 2
85 ggt gct gct taa gga gaa gct aat ggt aat taa cct ttc gca gca aat 48
86 Gly Ala Ala Gln Gly Glu Ala Asn Gly Asn Gln Pro Phe Ala Ala Asn
87 1          5          10          15
89 aat gct gct aga ggt ata tgt gta cca tgc caa ata aac aga gta ggc 96
90 Asn Ala Ala Arg Gly Ile Cys Val Pro Cys Gln Ile Asn Arg Val Gly
91          20          25          30
93 tct gtt acc aat gca ggt gac tta gct act tta gcc aca taa tgc agt 144
94 Ser Val Thr Asn Ala Gly Asp Leu Ala Thr Leu Ala Thr Gln Cys Ser
95          35          40          45
97 act taa tgt cct act ggc act gca ctt gat gat gga gtg aca gat gtt 192
98 Thr Gln Cys Pro Thr Gly Thr Ala Leu Asp Asp Gly Val Thr Asp Val
99          50          55          60
101 ttt gat aga tca gcc gca taa tgt gtt aaa tgc aaa cct aac ttt tac 240
102 Phe Asp Arg Ser Ala Ala Gln Cys Val Lys Cys Lys Pro Asn Phe Tyr
103 65          70          75          80
105 tat aat ggt ggt tct cct taa ggt gaa gct cct ggc gtt taa gtt ttt 288
106 Tyr Asn Gly Gly Ser Pro Gln Gly Glu Ala Pro Gly Val Gln Val Phe
107          85          90          95
109 gct gct ggt gct gcc gct gca ggt gtt g 316
110 Ala Ala Gly Ala Ala Ala Gly Val
111          100          105
114 <210> SEQ ID NO: 3
115 <211> LENGTH: 3
116 <212> TYPE: PRT
117 <213> ORGANISM: Ichthyophthirius multifiliis
119 <400> SEQUENCE: 3
120 Gly Ala Ala
121 1
124 <210> SEQ ID NO: 4
125 <211> LENGTH: 6
126 <212> TYPE: PRT
127 <213> ORGANISM: Ichthyophthirius multifiliis
129 <400> SEQUENCE: 4
130 Gly Glu Ala Asn Gly Asn
131 1          5
134 <210> SEQ ID NO: 5

```

RAW SEQUENCE LISTING DATE: 09/26/2000
 PATENT APPLICATION: US/09/196,161C TIME: 14:50:13

Input Set : A:\1459-011.app
 Output Set: N:\CRF3\09262000\I196161C.raw

```

135 <211> LENGTH: 34
136 <212> TYPE: PRT
137 <213> ORGANISM: Ichthyophthirius multifiliis
139 <400> SEQUENCE: 5
140 Pro Phe Ala Ala Asn Asn Ala Ala Arg Gly Ile Cys Val Pro Cys Gln
141   1               5               10               15
142 Ile Asn Arg Val Gly Ser Val Thr Asn Ala Gly Asp Leu Ala Thr Leu
143           20               25               30
144 Ala Thr
147 <210> SEQ ID NO: 6
148 <211> LENGTH: 3
149 <212> TYPE: PRT
150 <213> ORGANISM: Ichthyophthirius multifiliis
152 <400> SEQUENCE: 6
153 Cys Ser Thr
154   1
157 <210> SEQ ID NO: 7
158 <211> LENGTH: 20
159 <212> TYPE: PRT
160 <213> ORGANISM: Ichthyophthirius multifiliis
162 <400> SEQUENCE: 7
163 Cys Pro Thr Gly Thr Ala Leu Asp Asp Gly Val Thr Asp Val Phe Asp
164   1               5               10               15
165 Arg Ser Ala Ala
166           20
169 <210> SEQ ID NO: 8
170 <211> LENGTH: 15
171 <212> TYPE: PRT
172 <213> ORGANISM: Ichthyophthirius multifiliis
174 <400> SEQUENCE: 8
175 Cys Val Lys Cys Lys Pro Asn Phe Tyr Tyr Asn Gly Gly Ser Pro
176   1               5               10               15
179 <210> SEQ ID NO: 9
180 <211> LENGTH: 6
181 <212> TYPE: PRT
182 <213> ORGANISM: Ichthyophthirius multifiliis
184 <400> SEQUENCE: 9
185 Gly Glu Ala Pro Gly Val
186   1               5
189 <210> SEQ ID NO: 10
190 <211> LENGTH: 11
191 <212> TYPE: PRT
192 <213> ORGANISM: Ichthyophthirius multifiliis
194 <400> SEQUENCE: 10
195 Val Phe Ala Ala Gly Ala Ala Ala Ala Gly Val
196   1               5               10
200 <210> SEQ ID NO: 11
201 <211> LENGTH: 316
202 <212> TYPE: DNA

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RAW SEQUENCE LISTING DATE: 09/26/2000
 PATENT APPLICATION: US/09/196,161C TIME: 14:50:13

Input Set : A:\1459-011.app
 Output Set: N:\CRF3\09262000\I196161C.raw

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203 <213> ORGANISM: Ichthyophthirius multifiliis
205 <220> FEATURE:
206 <221> NAME/KEY: CDS
207 <222> LOCATION: (1)..(315)
209 <400> SEQUENCE: 11
210 gga tcc gct cag gga gaa gct aat ggt aat cag cct ttc gca gca aat 48
211 Gly Ser Ala Gln Gly Glu Ala Asn Gly Asn Gln Pro Phe Ala Ala Asn
212 1 5 10 15
214 aat gct gct aga ggt ata tgt gta cca tgc caa ata aac aga gta ggc 96
215 Asn Ala Ala Arg Gly Ile Cys Val Pro Cys Gln Ile Asn Arg Val Gly
216 20 25 30
218 tct ggt acc aat gca ggt gac tta gct act tta gcc aca caa tgc agt 144
219 Ser Gly Thr Asn Ala Gly Asp Leu Ala Thr Leu Ala Thr Gln Cys Ser
220 35 40 45
222 act cag tgt cct act ggc act gca ctt gat gat gga gtg aca gat gtt 192
223 Thr Gln Cys Pro Thr Gly Thr Ala Leu Asp Asp Gly Val Thr Asp Val
224 50 55 60
226 ttt gat aga tca gcc gca cag tgt gtt aaa tgc aaa cct aac ttt tac 240
227 Phe Asp Arg Ser Ala Ala Gln-Cys Val Lys Cys Lys Pro Asn Phe Tyr
228 65 70 75 80
230 tat aat ggt ggt tct cct cag ggt gaa gct cct ggc ctt cag gtt ttt 288
231 Tyr Asn Gly Gly Ser Pro Gln Gly Glu Ala Pro Gly Leu Gln Val Phe
232 85 90 95
234 gct gct ggt gct gcc gct gca gga att c 316
235 Ala Ala Gly Ala Ala Ala Ala Gly Ile
236 100 105
239 <210> SEQ ID NO: 12
240 <211> LENGTH: 105
241 <212> TYPE: PRT
242 <213> ORGANISM: Ichthyophthirius multifiliis
244 <400> SEQUENCE: 12
245 Gly Ser Ala Gln Gly Glu Ala Asn Gly Asn Gln Pro Phe Ala Ala Asn
246 1 5 10 15
248 Asn Ala Ala Arg Gly Ile Cys Val Pro Cys Gln Ile Asn Arg Val Gly
249 20 25 30
251 Ser Gly Thr Asn Ala Gly Asp Leu Ala Thr Leu Ala Thr Gln Cys Ser
252 35 40 45
254 Thr Gln Cys Pro Thr Gly Thr Ala Leu Asp Asp Gly Val Thr Asp Val
255 50 55 60
257 Phe Asp Arg Ser Ala Ala Gln Cys Val Lys Cys Lys Pro Asn Phe Tyr
258 65 70 75 80
260 Tyr Asn Gly Gly Ser Pro Gln Gly Glu Ala Pro Gly Leu Gln Val Phe
261 85 90 95
263 Ala Ala Gly Ala Ala Ala Ala Gly Ile
264 100 105
268 <210> SEQ ID NO: 13
269 <211> LENGTH: 66
270 <212> TYPE: DNA
271 <213> ORGANISM: Artificial Sequence

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RAW SEQUENCE LISTING DATE: 09/26/2000
 PATENT APPLICATION: US/09/196,161C TIME: 14:50:13

Input Set : A:\1459-011.app
 Output Set: N:\CRF3\09262000\I196161C.raw

```

273 <220> FEATURE:
274 <223> OTHER INFORMATION: Description of Artificial Sequence: synthetic
275     oligonucleotides
277 <400> SEQUENCE: 13
278 ggcggatccg ctcagggaga agctaattgt aatcagcctt tcgcagcaaa taatgctgct 60
279 agaggt                                     66
282 <210> SEQ ID NO: 14
283 <211> LENGTH: 60
284 <212> TYPE: DNA
285 <213> ORGANISM: Artificial Sequence
287 <220> FEATURE:
288 <223> OTHER INFORMATION: Description of Artificial Sequence: synthetic
289     oligonucleotides
291 <400> SEQUENCE: 14
292 accggtacca gagcctactc tgtttatttg gcatggtaca catatacttc tagcagcatt 60
295 <210> SEQ ID NO: 15
296 <211> LENGTH: 66
297 <212> TYPE: DNA
298 <213> ORGANISM: Artificial Sequence
300 <220> FEATURE:
301 <223> OTHER INFORMATION: Description of Artificial Sequence: synthetic
302     oligonucleotides
304 <400> SEQUENCE: 15
305 accggtacca atgcagggtga cttagctact ttagccacac aatgcagtac tcagtgtcct 60
306 actggc                                     66
309 <210> SEQ ID NO: 16
310 <211> LENGTH: 59
311 <212> TYPE: DNA
312 <213> ORGANISM: Artificial Sequence
314 <220> FEATURE:
315 <223> OTHER INFORMATION: Description of Artificial Sequence: synthetic
316     oligonucleotides
318 <400> SEQUENCE: 16
319 cgtgatctat caaaaacatc tgtcactcca tcatcaagtg cagtgccagt aggacactg 59
322 <210> SEQ ID NO: 17
323 <211> LENGTH: 68
324 <212> TYPE: DNA
325 <213> ORGANISM: Artificial Sequence
327 <220> FEATURE:
328 <223> OTHER INFORMATION: Description of Artificial Sequence: synthetic
329     oligonucleotides
331 <400> SEQUENCE: 17
332 cctgatcagc cgcacagtgt gttaaagtca aacctaactt ttactataat ggtgggtctc 60
333 ctcagggt                                     68
336 <210> SEQ ID NO: 18
337 <211> LENGTH: 69
338 <212> TYPE: DNA
339 <213> ORGANISM: Artificial Sequence
341 <220> FEATURE:

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VERIFICATION SUMMARY

DATE: 09/26/2000

PATENT APPLICATION: US/09/196,161C

TIME: 14:50:14

Input Set : A:\1459-011.app

Output Set: N:\CRF3\09262000\I196161C.raw

Raw Sequence Listing Error Summary

ERROR DETECTED SUGGESTED CORRECTION

SERIAL NUMBER:

09/196,161C

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

RECEIVED

DEC 23 2000

TECH CENTER JUN 29 2000

- 1 Wrapped Nucleics The number/text at the end of each line "wrapped" down to the next line.
This may occur if your file was retrieved in a word processor after creating it.
Please adjust your right margin to .3, as this will prevent "wrapping".
- 2 Wrapped Aminos The amino acid number/text at the end of each line "wrapped" down to the next line.
This may occur if your file was retrieved in a word processor after creating it.
Please adjust your right margin to .3, as this will prevent "wrapping".
- 3 Incorrect Line Length The rules require that a line not exceed 72 characters in length. This includes spaces.
- 4 Misaligned Amino Acid The numbering under each 5th amino acid is misaligned. This may be caused by the use of tabs
Numbering between the numbering. It is recommended to delete any tabs and use spacing between the numbers.
- 5 Non-ASCII This file was not saved in ASCII (DOS) text, as required by the Sequence Rules.
Please ensure your subsequent submission is saved in ASCII text so that it can be processed.
- 6 Variable Length Sequence(s) contain n's or Xaa's which represented more than one residue.
As per the rules, each n or Xaa can only represent a single residue.
Please present the maximum number of each residue having variable length and
indicate in the (ix) feature section that some may be missing.
- 7 PatentIn ver. 2.0 "bug" A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid
sequence(s) . Normally, PatentIn would automatically generate this section from the
previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section
to the subsequent amino acid sequence. This applies primarily to the mandatory <220>-<223>
sections for Artificial or Unknown sequences.
- 8 Skipped Sequences Sequence(s) missing. If intentional, please use the following format for each skipped sequence:
(OLD RULES) (2) INFORMATION FOR SEQ ID NO:X:
 (i) SEQUENCE CHARACTERISTICS: (Do not insert any headings under "SEQUENCE CHARACTERISTICS")
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:X:
 This sequence is intentionally skipped

Please also adjust the "(iii) NUMBER OF SEQUENCES:" response to include the skipped sequence(s).
- 9 Skipped Sequences Sequence(s) missing. If intentional, please use the following format for each skipped sequence.
(NEW RULES) <210> sequence id number
 <400> sequence id number
 000
- 10 Use of n's or Xaa's Use of n's and/or Xaa's have been detected in the Sequence Listing.
(NEW RULES) Use of <220> to <223> is MANDATORY if n's or Xaa's are present.
 In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 11 Use of <213> Organism Sequence(s) are missing this mandatory field or its response.
(NEW RULES) *7 (maybe more)*
- 12 Use of <220> Feature Sequence(s) are missing the <220> Feature and associated headings.
(NEW RULES) Use of <220> to <223> is MANDATORY if <213> ORGANISM is "Artificial" or "Unknown"
 Please explain source of genetic material in <220> to <223> section.
 (See "Federal Register," 6/01/98, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of new Rules)
- 13 PatentIn ver. 2.0 "bug" Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted
 file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing).
 Instead, please use "File Manager" or any other means to copy file to floppy disk.